

Maximizing Accessibility Of Academic Publications: Applications Of Electronic Publishing Technology

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ABSTRACT

Professors at higher education institutions often feel pressure to “publish or perish” in order to maintain their standing in the academic community, yet a large number of these publications languish in obscure technical journals or are presented only once at a conference or online journal. While these methods achieve the goal of spreading personal research to colleagues and other professionals, more can be done to make this information available to curious individuals. This paper examines the efficiency of using electronic publishing technology such as Amazon's Kindle Direct Publishing to publicize scientific research in order to disseminate knowledge and ideas through the academic community. Ten publications of an educator's research in the field of geospatial science were compiled into a single book, which was then published online using Kindle Direct Publishing. By making this information readily accessible, anyone with an interest in the material could use these publications to facilitate their own work. The increased availability of these publications was beneficial for students who needed access to such research for classwork, as well as professionals who benefited from the information contained in these reports. In this manner, ideas were more effectively disseminated among the geospatial community, thus increasing the potential for scientific collaboration and advancement. Additionally, this research is being utilized to stem the aspects of publish text books digitally by faculty for courses on campus. This method of information dissemination can be easily applied to all fields of research and education with similar results. The research contained in this paper will outline the challenges and methods used to publish academic scholarly knowledge on a more widely accessible platform.

Keywords: Electronic Publishing; Kindle; Academic Publishing with Kindle

INTRODUCTION

It is well established that universities and other post-secondary education institutions are constantly seeking to improve their reputation among the academic community. According to Tatiana Melguzio and Myra Strober (2007), the “prestige” of an institution increases as the prestige of its faculty increases; thus, an institution rewards faculty with tenure, promotions, and raises for activities that increases the institution's prestige in the academic community. Melguzio and Strober (2007) also state that professors and other faculty “increase their own prestige by publishing research and books...”, and that doing so directly increases the prestige of their institution. It follows, then, that most faculty members strive to publish as much of their research as possible to increase their academic standing, leading to the well known phrase “publish or perish.”

Since there are so many professors at so many education institutions, there is undoubtedly a large volume of published information being produced by these individuals. Even though about ninety percent of academic journals are currently published online (The Association of Learned and Professional Society Publishers, 2008),

many are subscription-only and more can be done to increase the accessibility of individual research to the general public. For example, a student may need access to a particular research paper for a class report, yet he or she is not subscribed to the online journal in which the paper was published or did not attend the conference at which the paper was presented. Additionally, searching for a printed journal in a library seems time-consuming and labor-intensive to a student living in this modern era. Thus, the student turns instead to the vast expanse of Internet sources, which may or may not yield reliable information. This presents the basis of the problem addressed by the research contained in this paper. How can the accessibility of academic research publications be improved so that information is available to all who need it? What if, instead of having to search through databases and library systems, the paper that the student needed could simply be downloaded online? Electronic downloads such as these are feasible if research papers are publicized using electronic publishing technology.

Several different electronic publishing technologies are available to convert research papers into downloadable electronic books (e-books) for sale on sites such as Amazon or Barnes&Noble. E-books are an ideal method for making research publications more accessible because virtually anyone with a computer or electronic reader (e-reader), such as a Kindle or a Nook, has access to e-books. E-book downloads are also relatively cheap in comparison to a journal subscription or the cost of attending a conference. In addition, the popularity of e-readers is growing exponentially, as the percentage of people who owned e-readers doubled in the six-month time period from November 2010 to May 2011 (Purcell, 2011). This expanding market is a great opportunity to expand the availability of academic research. As of September 2011, Amazon's Kindle generated the most e-book sales (Aptara Corporation, 2011). From this data, it follows that the Kindle e-book format has a wider audience, and thus the free Kindle Direct Publishing service was chosen as the test method for this study. The Kindle Direct Publishing (KDP) service is a program offered by Amazon that allows authors to self-publish their e-books for sale in the Kindle store. By setting up an free account with Amazon, authors can upload e-books in a variety of file formats, and KDP will convert the document into the necessary Kindle format. KDP also allows authors to choose the retail price of the e-book, as well as set royalty and digital rights protection options. After completing the upload process, the e-book becomes available for electronic download directly from the Kindle Store. Other free electronic publishing services include Barnes & Noble's PubIt service, Scribd, Lulu, and Smashwords, among others. Using these various electronic publishing services, professors can re-publish research papers that have no prior copyright in order to increase the accessibility of their research. In addition, research papers that were presented at conference, with no copyright, can be published using this method. This study details the process of utilizing Amazon's Kindle Direct Publishing service to make academic and scientific research more accessible to the general public.

METHODS

In order to test the theory that publishing research using electronic technology makes research more accessible to the public, several research papers written by an associate in the field of geospatial science were compiled into a single e-book and then published on the Amazon Kindle Store using Kindle Direct Publishing. Other programs that were used during this study included OpenOffice Writer, Calibre, and Kindle Previewer. Several steps were involved in the self-publishing process.

Selecting and Acquiring Publications

In order for research papers to be included in this study, several requirements had to be met. Most importantly, the author of the paper must hold all copyrights to the research paper, and the paper must not have any outstanding copyrights that prevented re-publishing of the information. For example, papers that were previously published in journals that retained the rights to the research were not included in the self-published e-book. Additionally, each research paper must have been in an acceptable format for compilation into a single e-book. OpenOffice Writer, a free word processing software that can be downloaded from the Internet and functions like Microsoft Word, was used in this study to compile individual papers into a single e-book. Thus, the publication documents were required to be saved in a format that could be opened by OpenOffice Writer (.doc, .odt, .docx, etc). Although Microsoft Word documents work best for conversion using KDP, OpenOffice Writer was chosen for use in this study in order to minimize cost and experiment with the functionality of the free word processing software. Other formats, especially Adobe PDF, were avoided because they were not easily converted to e-book file formats.

Compiling Documents into a Single File

In this study, nine research papers were published within a single e-book, which lowered the final cost of each individual paper. Thus, each paper had to be combined into a single document before the e-book could be put through the conversion process. If only one document is desired to be published, this step can be omitted. Before the documents could be combined into a single file, a template for the format of the final compilation had to be created. Published e-books are generally viewed on e-readers, which have smaller margins for displaying information. Thus, preparing the e-book involved changing the margins of the document to match the margins of a Kindle or other e-reader, which was achieved by downloading a Kindle template document from the OpenOffice online template forum (Rutenberg 2010). The text from each of the research publications was then copied into the e-book template document and the font was re-sized to an appropriate level.

Formatting

Once each individual paper was compiled into a single file, the document needed to be formatted in order to be successfully converted into the e-book format. Using font styles was the simplest way to give the document structure and organization so that it could be easily converted. Font style settings allow text to be tagged as headers, titles, text body, or other styles. To set a style using OpenOffice, the necessary text was highlighted and then assigned a style by selecting it from the drop down arrow at the top left of the OpenOffice toolbar (Figure A).

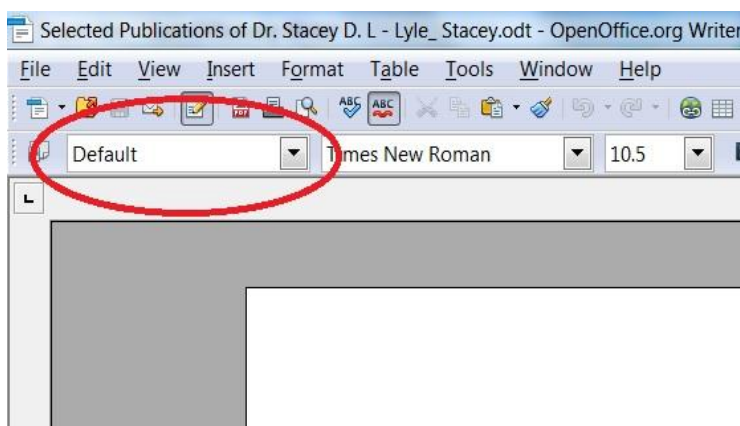


Figure A: Choosing a Style

Formatting Individual Papers using Font Styles:

In order to be able generate a table of contents for the finished e-book, each paper within the compilation was designed to appear as a “chapter” to the e-book conversion program. To accomplish this, the style of the title of each paper was set as Heading 1 and the titles of sections within each paper were set as Heading 2. Headings 3, 4, etc. were used for various levels of subsections. This provided a basic structure for the compilation that could be used to produce a table of contents after converting the document to an e-book file format.

Formatting Figures, Lists, and Tables:

Some important components of research, especially scientific research, are images, tables, and other data representations. These require special formatting in order to convert well to an e-book file format. Images must be saved in certain file formats to be recognized by the conversion program. JPEG image files were found to work well, and thus was the exclusive image format used in this study. Lists also are important to consider during the conversion process. The list must be formatted as a list in the OpenOffice document in order to appear as a list in the e-book. Finally, any tables and images in the document must not exceed the page margins of the Kindle template used to ensure that the information will be easily displayed on the e-reader.

Conversion

Because OpenOffice was chosen as the word processor used to combine each individual publication into a single file, the resulting file could not be saved as a Microsoft Word document without losing important document formatting. Thus, the compilation file (saved as a .odt file) was not in an acceptable format to be directly converted to the Kindle e-book format by the KDP conversion program. To remedy this situation, Calibre was used to convert the .odt file into an intermediate format that was recognized by KDP. Calibre is another free software that converts from various file formats to other formats that can be viewed on an e-reader (Goyal, 2011). The intermediate format chosen for use in this study was the MOBI file format. Although it can be viewed on a Kindle, the MOBI format is not the format used for published e-books in the Kindle Store and thus was not used as the format for the final e-book. However, the MOBI file format can be converted using the KDP service, thus making it a helpful intermediate in converting the e-book to the Kindle format from an OpenOffice document. This process is outlined as follows:

A. Downloading Calibre:

Calibre is a free software, as mentioned previously. It was downloaded from http://calibre-ebook.com/download_windows and installed by following the step-by-step instructions detailed on the website and in the installation wizard.

B. Uploading File to Calibre:

In order for Calibre to convert a file, the file must first be uploaded to the Calibre Library. To do this, the Calibre program was opened. Then, the red "Add Books" icon in the top left-hand corner of the window was clicked, and a pop-up window appeared (Figure B). The compilation file was then selected and opened. When the file was finished uploading to the Calibre Library, it was displayed in the main window.

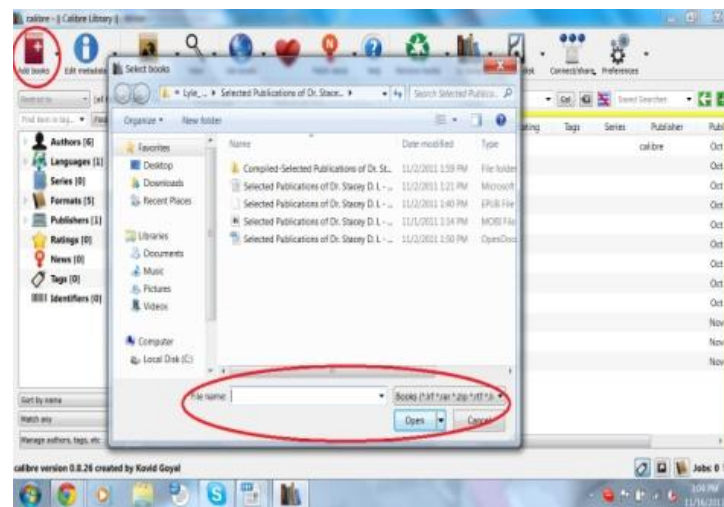


Figure B: Uploading File to Calibre Library

C. Converting File:

Once the OpenOffice file was uploaded into the Calibre Library, it was able to be converted using Calibre's conversion options. This was accomplished by following the procedure below:

1. Click on the brown "Convert Books" icon in the Calibre toolbar, pop-up window appears
2. Select "ODT" as input file format and "MOBI" as output file format
3. Click "Metadata" tab and enter title and author information
4. Scroll down and choose a cover image

5. Click “Table of Contents” tab and select “Force use of auto-generated Table of Contents”
6. Enter //h:h1 for the “Level 1 TOC (XPath expression)” and enter //h:h2 for the “Level 1 TOC (XPath expression)”
7. Click “MOBI Output” tab and enter a title for the Table of Contents
8. Select “Put generated Table of Contents at start of book instead of end,” if desired.
9. Click OK

The table of contents generated during the conversion process is convenient for readers who will be viewing the e-book. Kindle treats each publication in the compiled e-book as a “chapter” of the e-book. Since the e-book generated in this study included multiple publications, a table of contents allowed the reader to select the publication he would like to view, and the Kindle then jumped to that publication in the compiled e-book. For e-books that include only one publication, generating a Table of Contents is not necessary unless the publication is long and includes many subsections.

Calibre generates the table of contents by telling the conversion program what designates a chapter in the e-book. This is why formatting the original document with header styles is so important, since the header styles served to indicate the start of a new chapter. The command //h:h1 in the “Level 1 TOC (XPath expression)” tells Calibre that the start of each chapter begins with a line of text formatted with the Heading 1 (h1) style. Similarly, the //h:h2 command indicates that Heading 2 is the start of a subsection in each chapter. For this study, only two levels were used in the table of contents, but more can be added if preferred.

D. Viewing MOBI E-book:

Once Calibre finished converting the .odt e-book file, the MOBI output file could be clicked on from the Calibre Library and viewed in Calibre's e-book reader. This allowed for errors in the formatting to be spotted and corrected in the original .odt file. For example, several subsections of a paper in the compilation had not been properly formatted using Header styles, and consequently were left out of the table of contents in the MOBI output file. This was corrected by making the necessary changes to the .odt file and repeating the conversion process. Once the MOBI file was satisfactory, it could be uploaded to the Kindle Direct Publishing website.

Publishing E-book on Amazon

The final step in publishing academic research to Amazon's Kindle store was using Kindle Direct Publishing to upload the e-book compilation and convert it to the final Kindle e-book format. First, a free Amazon account was set up by clicking “Sign up” on the KDP website (<https://kdp.amazon.com/self-publishing/signin>) and entering the required information. Once the account was established, the “Add new title” option was clicked on from the main account screen. This brought up a page where the e-book information could be entered, such as author names, book description, cover image, among other details. The necessary fields were filled out, and a cover page image was uploaded. Finally, the MOBI e-book file was selected using the “Browse for book” button. Digital rights management (DRM) was not enabled, as DRM does allow the research to be shared easily between Kindle users, thus it is contrary to the objective of this study. Once the correct e-book file was chosen, the MOBI file was then converted to the Kindle format by the KDP conversion service.

Once the file was uploaded and converted, KDP provided the option of previewing the finalized e-book file. This was a very important step in the upload process, as KDP occasionally makes errors in converting a file, which must be identified and corrected before the book is put up for sale on the Kindle store. The Kindle Previewer allowed the e-book to be displayed on a computer the same way it would appear on a Kindle screen. This program was used to view the finalized e-book to find any errors in the compilation that may have occurred during the conversion process. Often, if the original document was not well formatted, structure and content is lost during conversion from one file format to another. Errors included missing page breaks between individual research papers, uneven font size throughout the e-book, among others. Using Kindle Previewer helped to identify and correct these errors, in addition to providing a glimpse of what the finished e-book would look like on an actual e-reader device.

RESULTS

After the e-book was converted to the Kindle e-book format, the last step in the upload process was to finalize the rights and pricing information. Since the object of this study was to make academic research more accessible, the price was set as low as possible and digital rights management was not enabled. This final step in the KDP self-publishing process also requires verification that the material contained in the e-book is free from third-party copyrights. Once the required information was entered, the finished e-book was uploaded to the Kindle store and became available for sale.

The final result was a complied book that included the collection of papers. Graphs, figures, images, and tables had some formatting issues in the final product, a problem which needs to be addressed in future studies. Advertising the book's availability can be done through faculty presentation to students. The publications can be obtained from Kindle Amazon or shared directly by the faculty member.

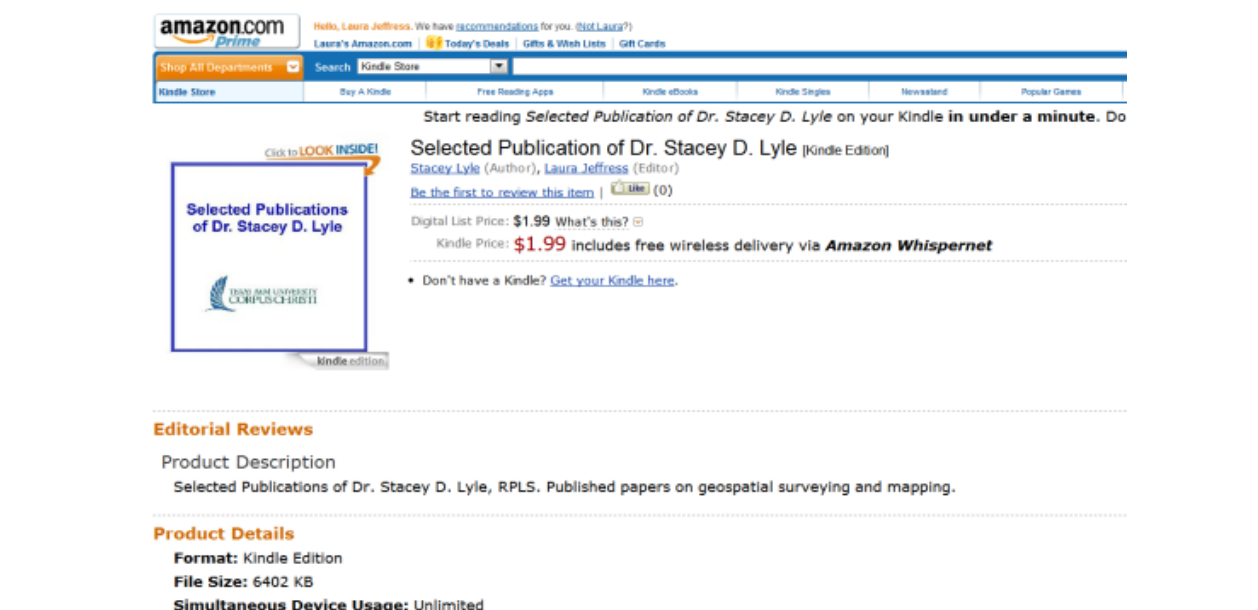


Figure C: Published e-book on Amazon Kindle Store

Figure C shows where the final product can be obtained through the Amazon Kindle Store. The author can track the number of viewers and sales with Kindle's "stats" page. This information can be used to help the faculty member track the amount of usage of written material and material potentially used for reference. This information can provide insight to the degree to which the research contained in the e-book is being distributed throughout the academic community. Due to the short amount of time between the upload of the e-book used in this study and the publication of this report, data from the stats was insufficient to include with these results.

CONCLUSION

Electronic publishing is a new technology that has the potential to greatly increase the spread of knowledge throughout the academic community as well as the general public. Like many other electronic publishing platforms, Amazon, with the new release of the Kindle Fire and Kindle Touch, is creating a larger market place for developed application and publications. In addition, Amazon has two royalty options, the most popular of which is a user revenue split of 70% to the author, after Amazon's fees which include a net delivery cost of \$0.15/MB. This option, however, is only available for e-books priced within a certain range. The other option is an author royalty of 30% after fees. Because Amazon Kindle does not have a monthly wireless fee, the cost to obtain the active content must be priced to cover the cost of download and ongoing usage. Therefore, fees are necessary, yet they are kept to the minimum amount needed to obtain the publication (Amazon, 2011).

In addition, a Kindle Development Kit can be obtained that allows authors and developers to create interactive applications. This could also assist scientist and researchers to help develop interactive tools to educate or share content. The Kindle Development Kit provides an application programming interface and tools to allow quick and easy product development with a head start approach. Faculty members can self-publish educational books that are available to their students where the author has full control of the content and distribution. Correction and edits can be done quickly and effortlessly without laborious back and forth with publishing houses. Additionally, with the interactive content, test, laboratories, video tutorials, dynamic links, and direct communication channels are available.

The research contained in this study can also be applied by students, who can publish electronic versions of their class notes using electronic publishing technology such as Amazon Kindle. This provides a valuable study resource for other students, who can bolster their understanding of the material by gaining another's perspective on the information covered in the class.

This method of publishing has the potential to become the future that students will demand to mitigate educational cost. Electronic publishing also serves as a valuable means of sharing academic research with a wider audience, although it is not yet fully developed enough to be a primary publication platform. Rather, it is an option available to faculty to redistribute their already peer-reviewed research. Electronic publication will also potentially provide more direct funding to the authors of original works, since they have the option to receive 70% of the revenue generated by their publications. In summary, electronic publishing is a novel, growing technology that has vast potential to shape the future of academic publication.

The high cost of university textbooks are becoming a burden on students. Textbook publishers offer faculty up-front-money (or advances) and then small royalties for authorship of college textbooks. The printed books cost the publishers a great deal of money for the printing and production. This cost could be deferred by creating digital publications. Faculty can often receive release and support from the universities to create the textbook work of art. Self-publishing could allow faculty to retain the profits, and pass the savings to the students. Additional benefits include the ability to correct any errors often found in textbooks at any time with a digital version online. Universities can and have setup digital review and editing services for faculty wanting to create textbooks and pass their knowledge to the students and community while reducing the overall cost.

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